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EXAMINER

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Please find below and/or attached an Office communication concerning this application or proceeding.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 2-16 and 40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 2 and its dependent claims 3-16, there is insufficient structure recited in claim 2 to understand how the recited pressure application force is set larger than a buckling force of each of the plurality of papers. What structure makes this happen?

Also, it is unclear in claim 2 and its dependent claims, what is meant by the auxiliary pickup roller being raised up **based on a type of the plurality of papers**. For example, does the auxiliary pickup roller raise all the way up?

Claim 40 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the structure or structural relationship between the claimed elements (e.g., the auxiliary pickup roller, the main pickup roller and the supporting plate) that allows the operating force of the main pickup roller to be maintained constant regardless of the respective thickness of

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the papers. Also, what structure or structural relationship allows the auxiliary pickup roller to apply a corresponding pressure to each of the papers in accordance with respective thickness of the papers upon transfer of the papers via the main pickup roller? How can a supporting plate that connects two rollers together perform these functions?

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 7-11 and 22, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,375,183 (Innoue et al.). In particular, the Innoue et al. patent discloses all of the limitations of claims 1-3 and 7-11 and 22.

Regarding claim 1, Figs. 3-4 show an apparatus to feed a plurality of papers (S) in an image forming device, including

a feeding stand (1) to receive the plurality of papers (S);

a separating guide (2) provided to the feeding stand (1), with which front ends of the plurality of papers (S) makes contact;

a main pickup roller (3) provided to make contact with an uppermost layer of the plurality of papers (S) in an upper part of the feeding stand (1) to separately transfer the plurality of papers (S) towards the separating guide (2); and

an auxiliary pickup roller (21 or 23) to apply a predetermined pressure to each of the plurality of papers (S) upon transfer of the plurality of papers (S) via the main pickup roller (3).

Regarding claim 2, the Abstract and Fig. 4 disclose that a vertical pressure application force including pressure applied by weight of the auxiliary pickup roller is set larger than a buckling force of each of the plurality of papers to induce buckling between the auxiliary pickup roller (21 or 23) and the separating guide (2) by a front end resistance force of the separating guide (2); and

pickup by slipping against the separating guide (2) is generated at a front end of each of the plurality of papers (S) so that the auxiliary pickup roller (21 or 23) is raised up based on a type of the plurality of papers. In particular, the Abstract explains that the auxiliary pickup roller is raised up depending on the rigidity of the paper.

Regarding claim 3, Figs. 3-4 show a pickup bracket (5) having the main pickup roller (3) installed at one end;

a gear train (including Gc, Gb, Ga) provided inside the pickup bracket (5) to transfer external power to the main pickup roller (3); and

at least one supporting plate (22 or 24) to rotatably connect the auxiliary pickup roller (21 or 23) to an axis (3a) of the main pickup roller (3). For example, the supporting plate (22) rotatably connects auxiliary pickup roller (21) to the axis (3a) of the main pickup roller (3) via a shaft (4) and the pickup bracket (5).

Regarding claim 7, Figs. 3-4 show that the auxiliary pickup roller (21 or 23) is installed to run idle and rotates when each of the plurality of papers is transferred.

Regarding claim 8, the auxiliary pickup roller (21 or 23) will operate with the same linear velocity as the main pickup roller (3) when the auxiliary pickup roller is not being lifted. See, for example, Fig. 3.

Regarding claim 9, Fig. 4 shows that another auxiliary pickup roller (21 or 23) is provided to apply pressure to each of the plurality of papers.

Regarding claim 10, Fig. 4 shows a combination of a plurality of divided roller members (21 and 23) are provided as the auxiliary pickup roller.

Regarding claim 11, Fig. 4 shows a pressure applying unit (including 22 and 24) to generate, and to maintain the vertical pressure application force of the auxiliary pickup roller (21 and/or 23).

Regarding claim 22, the operating torque applied to the main pickup roller is inherently uniformly controlled in the Innoue apparatus in order for the pickup roller to properly feed sheets.

3. Claim 40, as best understood, is rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent Publication No. 20020084573.

Regarding claim 40, Figs. 1-2(f) show an apparatus for feeding papers in an image forming device (numbered paragraph [0002]), including

a main pickup roller (133) to make contact with an uppermost layer of each of the papers to separately transfer the papers towards a separating guide (not numbered);
and

an auxiliary pickup roller (105) connected with the main pickup roller (133) via a supporting plate (112 in Fig. 1) to apply a corresponding pressure to each of the papers

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in accordance with respective thickness of the papers upon transfer of the papers via the main pickup roller (133), wherein an operating force of the main pickup roller (133) is maintained to be constant regardless of the respective thickness of the papers. In as much as applicant's two pickup rollers connected by a supporting perform the claimed function, it is the examiner's position that the two pickup rollers connected by the supporting plate in U.S. Patent Publication No. 20020084573 can also perform the claimed function.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4-5 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,375,183 (Inoue et al.).

Regarding claim 4, Figs. 1-7, 12-13 and 15-17 show auxiliary pickup rollers that are positioned at different distances from separating guides. Fig. 4 shows auxiliary pickup rollers (21 and 23) that are relatively close a separating guide 2, while Fig. 13 shows an auxiliary roller (124) that is relatively far away from a separating guide (133). Also, Fig. 15 shows an adjustable separating guide (141), which allows spacing to be adjusted between a separating guide (141) and an auxiliary roller (124). Thus, selecting a convenient range of distances between an auxiliary pickup roller and a separating

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guide as recited in claim 4 is merely a design choice within the skill of one of ordinary skill in the art.

Regarding claim 5, Figs. 1-7, 12-13 and 15-17 show different ways of applying force to auxiliary pickup rollers. Figs. 1-2 show arms that apply force to auxiliary rollers (6 and 14), while Fig. 12 shows a spring (126) that biases an auxiliary pickup rollers (124) into contact with a stack of paper. Moreover, Figs. 1-7, 12-13 and 15-16 show different length moment arms that can apply different amounts of force to auxiliary pickup rollers. Thus, selecting a convenient range of forces to apply to an auxiliary pickup roller is merely a design choice within the skill of one of ordinary skill in the art.

Regarding claim 12, Fig. 12 shows a pressure applying unit (including 126) that has an elastic member (126) to apply pressure on a supporting plate (125), wherein the pressure applying unit (including 126) is supported via a pickup bracket (123) at one end and the pressure applying unit (including 126) is supported via the supporting plate (125) at another end. In particular, column 9, lines 39-45 explain that the elastic member (126) urges the supporting plate (125) in a counterclockwise direction as viewed in FIG. 12 figure so that the auxiliary pickup roller (124) is urged into contact with the leading end of the stack of sheets. It would have been obvious to one of ordinary skill in the art at the time of the invention, to provide the supporting plate (22 or 24) shown in Fig. 4, with an elastic member in order to ensure that the auxiliary pickup roller (21 or 23) is urged into contact with a leading end of the paper, as taught in Innoue et al.

Regarding claim 13, Fig. 12 shows that the elastic member (126) includes one of a torsion spring, a coil spring, and a plate spring.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,375,183 (Innoue et al.) as applied to claim 2 above, and further in view of U.S. Patent Publication No. 20020113364 (Hsieh et al.). The Innoue et al. patent shows most of the limitations of claim 6, but does not specifically show the friction member.

U.S. Patent Publication No. 20020113364 discloses that it is well known to provide a roller (33) with a thin friction member (31) to provide the proper friction coefficient for feeding paper and reduce manufacturing cost. See Abstract and Summary Of The Invention. It would have been obvious to one of ordinary skill in the art at the time of the invention, to provide the surface of the auxiliary pickup roller of Innoue et al. with a friction member to provide the proper friction coefficient for feeding paper, as taught by U.S. Patent Publication No. 20020113364. The friction member (31) disclosed in U.S. Patent Publication No. 20020113364 has a predetermined frictional force with respect to the buckling force of paper provided to a surface of the auxiliary pickup roller.

6. Claims 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,375,183 (Innoue et al.) as applied to claim 3 above, and further in view of Japanese Publication No. 4-201933. The Innoue et al. patent discloses all of the limitations of claims 14 and 16, except for the exciting unit.

Regarding claim 14, Fig. 1 of Japanese Publication No. 4-201933 shows an exciting unit (4) coupled to a feeding stand (6a), to prevent overlapped transfer of a plurality of papers (1 and 2). See English Abstract. It would have been obvious to one of ordinary skill in the art at the time of the invention, to provide the feeding stand (1) of Innoue et al. with an exciting unit in order to prevent double feeding of sheets, as taught by Japanese Publication No. 4-201933.

Regarding claim 16, the exciting unit (4) of Japanese Publication No. 4-201933 includes a vibrating member. See English Abstract.

7. Claims 21, 23-32 and 36-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,375,183 (Innoue et al.) in view of Japanese Publication No. 4-201933. Innoue et al. in view of Japanese Publication No. 4-201933 meets all of the limitations of claims 21, 23-32 and 36-39.

Regarding claim 21, Figs. 3-4 of Innoue et al. show an apparatus to feed paper in an image forming device, including

- a feeding stand (1) to receive a plurality of papers (S);
- a separating guide (2) provided to the feeding stand (1) inclined at a predetermined angle with which a front end of the plurality of papers (S) makes contact;
- a main pickup roller (3) to transfer the plurality of papers (S) towards the separating guide (2) using a frictional force generated by rotational contact with the plurality of papers (S);

an auxiliary pickup roller (21 or 23) to apply a predetermined pressure on the plurality of papers upon transfer of the plurality of papers (S) via the main pickup roller (3).

Fig. 1 of Japanese Publication No. 4-201933 shows an exciting unit (4) coupled to a feeding stand (6a), to prevent overlapped transfer of a plurality of papers (1 and 2). See English Abstract. It would have been obvious to one of ordinary skill in the art at the time of the invention, to provide the feeding stand (1) of Innoue et al. with an exciting unit in order to prevent double feeding of sheets, as taught by Japanese Publication No. 4-201933.

Regarding claim 23, the Abstract of the Innoue et al. patent discloses that a vertical application force including pressure applied by weight of the auxiliary pickup roller (21 or 23) is set larger than a buckling force of each of the plurality of papers (S) to induce buckling between the auxiliary pickup roller (21 or 23) and the separating guide (2) by front end resistance force of the separating guide (2). See, for example, Fig. 4 and Abstract.

Regarding claim 24, the Abstract of Innoue et al. discloses that the plurality of papers are caused to slip against the separating guide (e.g., 2) at a front end of each of the plurality of papers so that the auxiliary pickup roller (e.g., 21) is raised up.

Regarding claim 25, Figs. 3-4 of Innoue et al. shows that the auxiliary pickup roller (23) is rotatably installed to an axis (3a) of the main pickup roller (3) via elements (24, 4 and 12).

Regarding claim 26, Figs. 3-4 of Innoue et al. show that the separating guide (2) has a predetermined slope.

Regarding claim 27, Fig. 4 of Innoue et al. shows that the separating guide (2) further includes

a plurality of friction members (2a) attached to a surface portion of the separating guide (2).

Regarding claim 28, Figs. 3-4 of Innoue et al. show a pickup arm (5 or 12) to support the main pickup roller (3).

Regarding claim 29, Fig. 4 of Innoue et al. shows that the auxiliary pickup roller (21 or 23) is installed between the main pick up roller (3) and the separating guide (2) through the pickup arm (5 or 12).

Regarding claim 30, Fig. 4 shows a power transferring unit (including Ga, Gb and Gc) to provide power to the main pickup roller (3).

Regarding claim 31, Fig. 3-4 show at least two supporting plates (22 and 4) to support the auxiliary pickup roller (23) between the main pickup roller (3) and the separating guide (2).

Regarding claim 32, Figs. 3-4 show that each of the at least two supporting plates (24 and 22) include a first connecting part (4) rotatably connected with a rotational axis (3a) of the main pickup roller (3) (i.e., part (4) is connected via element (12) to axis (3a)); and

a second connecting part (24) to which the auxiliary pickup roller (23) is rotatably installed.

Regarding claim 36, the operational force applied to the main pickup roller (3) of Innoue et al. is inherently constant in order for the pickup roller (3) to properly pickup each sheet.

Regarding claim 37, Fig. 4 of Innoue et al. shows an additional auxiliary pickup roller (21 or 23) is provided to apply the predetermined pressure on the plurality of papers.

Regarding claim 38, as best understood, Fig. 4 of Innoue et al. shows a contact area caused by the additional auxiliary pickup roller (21 and 23) and the auxiliary pickup roller (21 or 23) to each of the plurality of papers (S1) as a result of the additional auxiliary pickup roller (21 or 23) is less than a contact area without the additional auxiliary pickup roller (21 or 23). This also makes the pressure application force per unit area increase.

Regarding claim 39, Figs. 3-4 of Innoue et al. show that the auxiliary pickup roller (21 or 23) is merely rotated by frictional force created when each of the plurality of papers (S) picked up by rotation of the main pickup roller (3) passes through the auxiliary pickup roller (21 or 23).

8. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,375,183 (Innoue et al.) (hereinafter "Innoue '183") in view of Japanese Publication No. 4-201933 as applied to claim 32 above, and further in view of U.S. Patent No. 6,502,816 (Innoue et al.) (hereinafter "Innoue '816"). Innoue '183 in

view of Japanese Publication No. 4-201933 meets most of the limitations of claim 33, but does not specifically show an elastic member arrangement as claimed.

Fig. 13 of Innoue '816 shows an elastic member (including 68) having a torsion spring (68) with one end connected to the rotational axis (not numbered) of a main pickup roller (7) (i.e., one end of torsion spring (68) is connected to the axis (not numbered) of the main roller (7) via element (9)) and another end (opposite end) of spring (68) is connected to at least two supporting plates (67a and 67) of an auxiliary roller (66), to provide pressure to a plurality of papers (S). The spring (68) ensures that the roller (66) is biased toward the stack. See column 10, lines 55-60. It would have been obvious to one of ordinary skill in the art at the time of the invention, to provide around each of the at least two supporting plates (24 and 4 in Figs. 3-4 of Innoue '183), a biasing member, in order to ensure that the auxiliary roller (23) of Innoue '183 is biased toward the paper, as taught by Innoue '816.

Response to Arguments

9. Applicant's arguments filed 10/6/05 have been fully considered but they are not persuasive. With regard to independent claims 1 and 21, applicant appears to argue that Innoue '183 does not have an auxiliary pickup roller that applies a predetermined pressure. It is the examiner's position that the auxiliary roller structure (including 23) of Innoue '183 contacts the sheets, thereby applying pressure to the sheets (e.g., via the weight of the auxiliary roller structure). Such pressure can be considered to be a predetermined pressure, as claimed.

Allowable Subject Matter

10. Claims 15 and 34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 15 also needs to be amended to overcome the rejection of claim 2 under 35 U.S.C. 112, second paragraph outlined above.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas A. Morrison whose telephone number is (571) 272-7221. The examiner can normally be reached on M-F, 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kathy Matecki can be reached on (571) 272-6951. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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